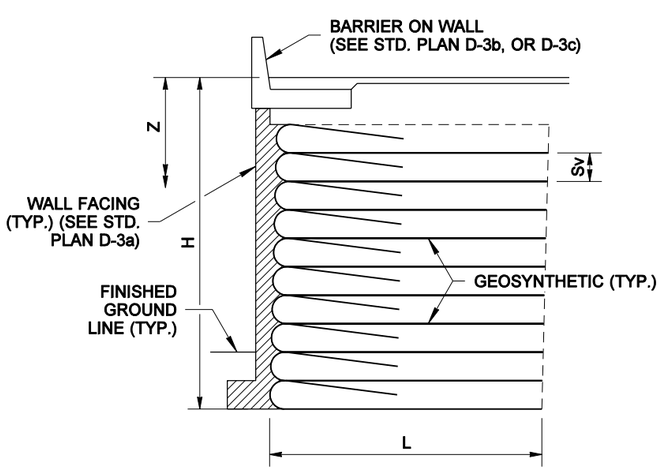
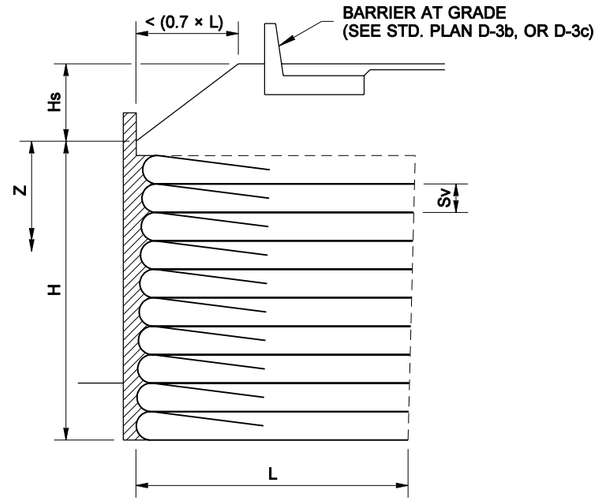
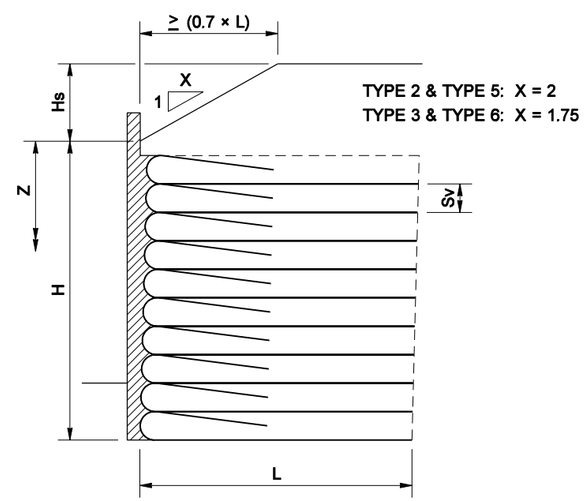
DRAWN BY: MARK SUJKA



GEOSYNTHETIC WALL, TYPE 1
INCLUDES SEISMIC DESIGN
GROUND ACCELERATION COEFFICIENT, A=0.16g TO 0.30g.
HORIZONTAL BACKSLOPE WITH 2 FT. TRAFFIC SURCHARGE



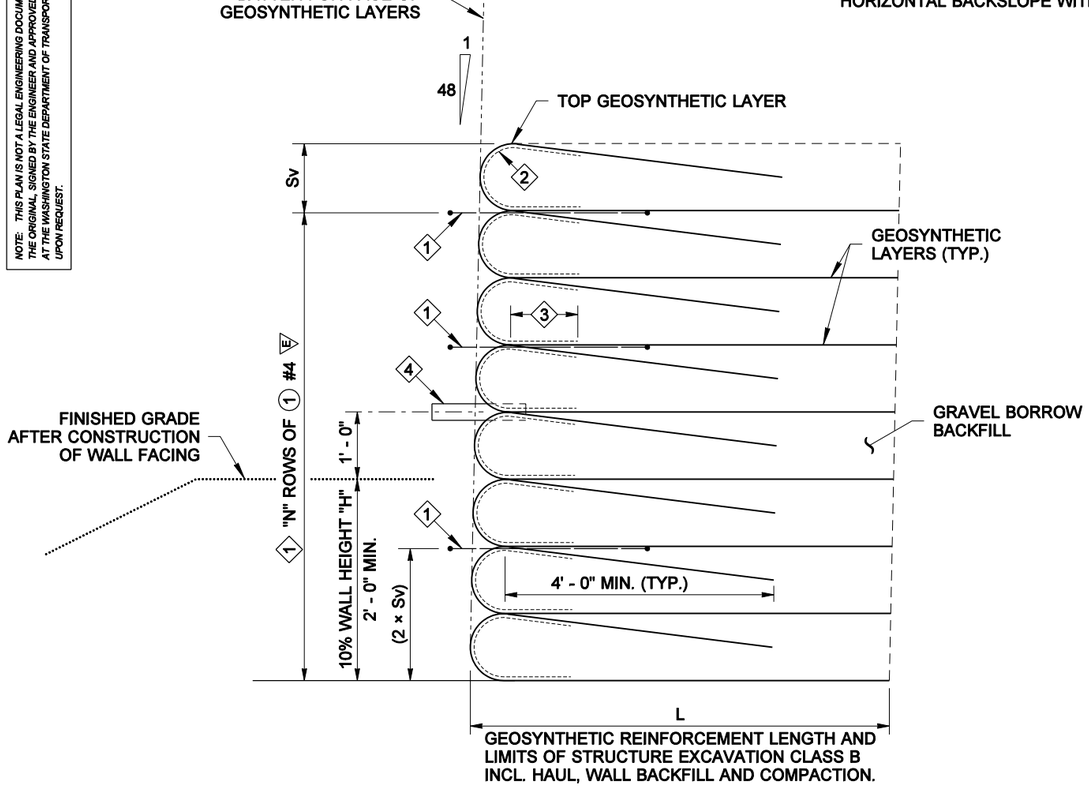
GEOSYNTHETIC WALL, TYPE 4
STATIC DESIGN ONLY
GROUND ACCELERATION COEFFICIENT, A=0.15g OR LESS.
HORIZONTAL BACKSLOPE WITH 2 FT. TRAFFIC SURCHARGE



GEOSYNTHETIC WALL, TYPES 2 & 3
INCLUDES SEISMIC DESIGN
GROUND ACCELERATION COEFFICIENT, A=0.16g TO 0.30g.

GEOSYNTHETIC WALL, TYPES 5 & 6
STATIC DESIGN ONLY
GROUND ACCELERATION COEFFICIENT, A=0.15g OR LESS.

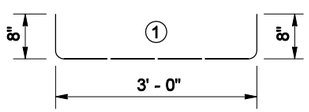
PERMANENT GEOSYNTHETIC WALLS
TYPICAL CROSS SECTIONS



SECTION DETAIL

KEY NOTES

1. "N" ROWS OF ① #4 E DOWEL REINFORCEMENT PLACED BETWEEN GEOSYNTHETIC LAYERS @ 5' - 0" O.C. HORIZONTAL SPACING, SEE TABLE, SHEET 2. VERTICAL SPACING BETWEEN ROWS TO BE EQUAL, AS MULTIPLES OF "Sv" ALLOW. ROWS MAY BE STAGGERED.



2. GEOTEXTILE FOR UNDERGROUND DRAINAGE CLASS A, LOW SURVIVABILITY (ONLY NEEDED IF A GEOGRID IS USED FOR GEOSYNTHETIC REINFORCEMENT)
3. 1' - 0" MIN. GEOTEXTILE OVERLAP, TOP & BOTTOM
4. 3" I.D. PVC PIPE FOR WEEP HOLE IN WALL FACING ~ PLACE BETWEEN GEO-SYNTHETIC LAYERS APPROX. 9" DEEP AT 10' - 0" HORIZONTAL SPACING, LENGTH TO EXTEND TO OUTER SURFACE OF SPECIFIED WALL FACING.

NOTES

FOR THE VALUES OF "L", "N", AND "Sv", SEE SHEET 2.

FOR GEOSYNTHETIC WALL CONSTRUCTION SEQUENCE, SEE SHEET 3.

E = EPOXY COATED

EXPIRES JULY 1, 2005

PERMANENT GEOSYNTHETIC WALL TYPES 1 ~ 6 STANDARD PLAN D-3

SHEET 1 OF 3 SHEETS

APPROVED FOR PUBLICATION

Harold J. Peterfeso — STATE DESIGN ENGINEER — *06-30-04* — DATE

Washington State Department of Transportation

DRAWN BY: MARK SUJKA

GEOSYNTHETIC REINFORCEMENT LENGTH AND DOWELS

TOTAL WALL HEIGHT **H+Hs** (ft)	FASCIA FOOTING WIDTH **B** (ft - in)	GEOSYNTHETIC REINFORCEMENT LENGTH **L** (ft)						ROWS OF #4 (E) DOWEL BARS REQUIRED **N** (No.)
		TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6	
≤ 5'	1' - 0"	6.0	6.0	6.5	6.0	6.0	6.0	2
6'	1' - 0"	6.0	6.0	7.9	6.0	6.0	6.0	3
7'	1' - 0"	6.4	6.9	9.3	6.4	6.4	6.4	3
8'	1' - 0"	6.9	7.9	10.7	6.9	6.9	7.1	3
9'	1' - 0"	7.4	8.9	12.1	7.4	7.4	8.1	3
10'	1' - 0"	7.9	10.0	13.5	7.9	7.9	9.0	4
11'	1' - 0 1/2"	8.4	11.0	14.7	8.4	8.4	10.0	4
12'	1' - 0 1/2"	8.8	12.0	16.1	8.8	8.8	10.9	4
13'	1' - 1"	9.3	13.0	17.5	9.3	9.3	11.9	4
14'	1' - 1"	9.8	13.9	18.9	9.8	9.8	12.8	4
15'	1' - 2"	10.5	14.9	20.3	10.5	10.5	13.7	6
16'	1' - 2"	11.2	16.0	21.7	11.2	11.2	14.7	6
17'	1' - 2 1/2"	11.9	17.0	22.9	11.9	11.9	15.6	8
18'	1' - 2 1/2"	12.6	18.0	24.3	12.6	12.6	16.6	8
19'	1' - 3"	13.3	19.0	25.7	13.3	13.4	17.5	8
20'	1' - 3"	14.0	20.1	27.1	14.0	14.1	18.5	10
21'	1' - 3 1/2"	14.7	21.1	28.5	14.7	14.8	19.4	10
22'	1' - 3 1/2"	15.4	22.2	29.9	15.4	15.5	20.4	10
23'	1' - 4"	16.1	23.2	31.1	16.1	16.2	21.3	10
24'	1' - 4"	16.8	24.2	32.5	16.8	16.9	22.3	10
25'	1' - 5"	17.5	25.2	33.9	17.5	17.7	23.2	10
26'	1' - 5"	18.2	26.3	35.3	18.2	18.4	24.2	10
27'	1' - 5 1/2"	18.9	27.3	36.7	18.9	19.1	25.1	10
28'	1' - 5 1/2"	19.6	28.2	38.1	19.6	19.9	26.1	10
29'	1' - 6"	20.3	29.2	39.5	20.3	20.6	27.0	10
30'	1' - 6"	21.0	30.3	40.7	21.0	21.3	28.0	10
31'	1' - 6 1/2"	21.7	31.4	42.1	21.7	22.0	28.9	10
32'	1' - 6 1/2"	22.4	32.3	43.5	22.4	22.8	29.9	10
33'	1' - 7"	23.1	33.3	44.9	23.1	23.4	30.8	10
34'	1' - 7"	23.8	34.3	46.3	23.8	24.2	31.8	10
35'	1' - 8"	24.5	35.4	47.7	24.5	24.9	32.7	10

GEOSYNTHETIC REINFORCEMENT SPACING AND STRENGTH

TOTAL WALL HEIGHT **H+Hs** (ft)	DEPTH BELOW TOP OF SURCHARGE **Z+Hs** (ft)	GEOSYNTHETIC REINFORCEMENT VERTICAL SPACING **Sv** (ft)	LONG-TERM GEOSYNTHETIC REINFORCEMENT STRENGTH REQUIRED **Tal** (lbs/in.)					
			TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6
UP TO 5	5	0.75	20.3	18.3	19.0	20.3	18.3	19.0
	5	1.00	27.1	24.5	25.4	27.1	24.5	25.4
	5	1.25	33.8	30.6	31.7	33.8	30.6	31.7
5 < H+Hs ≤ 10	0 to 10	0.75	34.8	34.6	36.5	34.8	34.6	36.5
	0 to 10	1.00	46.4	46.1	48.7	46.4	46.1	48.7
	0 to 10	1.25	58.0	57.6	60.9	58.0	57.6	60.9
10 < H+Hs ≤ 20	0 to 10	0.75	34.8	41.5	48.3	34.8	38.9	44.5
	10.1 to 20	0.75	63.8	67.9	73.5	63.8	67.9	73.5
	0 to 10	1.00	46.4	55.4	64.5	46.4	51.9	59.3
	10.1 to 20	1.00	85.0	90.6	98.0	85.0	90.6	98.0
	0 to 10	1.25	58.0	69.2	80.6	58.0	64.9	74.1
	10.1 to 20	1.25	106.0	113.0	122.0	106.0	113.0	122.0
20 < H+Hs ≤ 30	0 to 10	0.75	36.8	51.7	62.0	34.8	44.0	52.4
	10.1 to 20	0.75	63.8	73.0	83.3	63.8	73.0	81.4
	20.1 to 30	0.75	92.8	102.0	110.0	92.8	102.0	110.0
	0 to 10	1.00	49.1	69.0	82.6	46.4	58.7	69.9
	10.1 to 20	1.00	85.0	97.4	111.0	85.0	97.3	109.0
	20.1 to 30	1.00	124.0	136.0	147.0	124.0	136.0	147.0
	0 to 10	1.25	61.3	86.2	103.0	58.0	73.4	87.3
	10.1 to 20	1.25	106.0	122.0	139.0	106.0	122.0	136.0
	20.1 to 30	1.25	155.0	170.0	184.0	155.0	170.0	184.0
30 < H+Hs ≤ 35	0 to 10	0.75	38.7	56.9	68.8	34.8	46.6	56.4
	10.1 to 20	0.75	63.8	78.1	90.1	63.8	75.6	85.4
	20.1 to 30	0.75	92.8	104.5	114.0	92.8	104.5	114.0
	30.1 to 35	0.75	107.0	119.0	129.0	107.0	119.0	129.0
	0 to 10	1.00	51.6	75.8	91.8	46.4	62.1	75.2
	10.1 to 20	1.00	85.0	104.0	120.0	85.0	101.0	114.0
	20.1 to 30	1.00	124.0	139.0	152.0	124.0	139.0	152.0
	30.1 to 35	1.00	143.0	159.0	172.0	143.0	159.0	172.0
	0 to 10	1.25	64.4	94.8	115.0	58.0	77.6	93.9
	10.1 to 20	1.25	106.0	130.0	150.0	106.0	126.0	142.0
	20.1 to 30	1.25	155.0	174.0	191.0	155.0	174.0	191.0
	30.1 to 35	1.25	179.0	198.0	215.0	179.0	198.0	215.0

NOTES

THE LONG-TERM GEOSYNTHETIC DESIGN STRENGTH "Tal" SHALL BE DETERMINED IN ACCORDANCE WITH WSDOT STANDARD PRACTICE T925. SEE QUALIFIED PRODUCTS LIST FOR PRODUCTS IN WHICH "Tal" HAS BEEN DETERMINED.

"H", "Hs", "L", AND "Z" ARE GRAPHICALLY DEFINED ON SHEET 1.

"Z" IS THE DISTANCE FROM THE TOP OF WALL (AS SHOWN) TO A GEOSYNTHETIC LAYER, AND IS USED TO DETERMINE "Tal" FOR THAT LAYER.

COLUMN "B" IS A REFERENCE FOR STANDARD PLAN D-3a.

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EXPIRES JULY 1, 2005

PERMANENT GEOSYNTHETIC WALL TYPES 1 ~ 6 STANDARD PLAN D-3

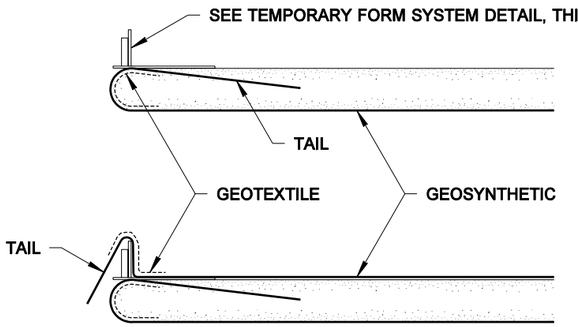
SHEET 2 OF 3 SHEETS

APPROVED FOR PUBLICATION

Harold J. Peterfeso — STATE DESIGN ENGINEER — *06-30-04* — DATE

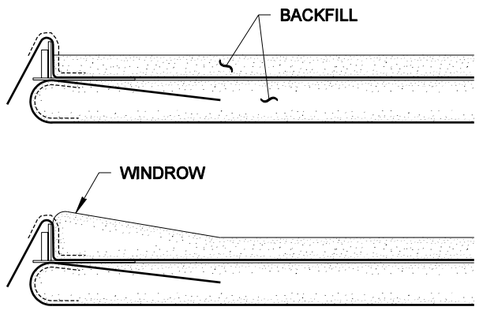
Washington State Department of Transportation

DRAWN BY: MARK SUJKA



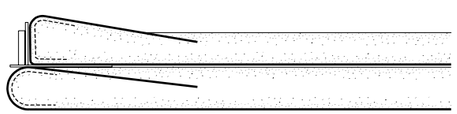
1. SET FORM ON COMPLETED LIFT.

2. UNROLL GEOSYNTHETIC AND POSITION IT SO THAT A 4' - 0" WIDE "TAIL" DRAPES OVER THE FORM. IF A GEOGRID IS USED FOR THE GEOSYNTHETIC REINFORCEMENT, POSITION GEOTEXTILE TO PREVENT BACKFILL FROM SPILLING THROUGH GEOGRID OPENINGS.

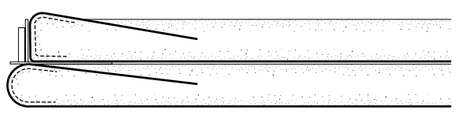


3. PLACE THE BACKFILL UNTIL THE BACKFILL IS UP TO HALF OF THE REQUIRED VERTICAL GEOSYNTHETIC LAYER SPACING.

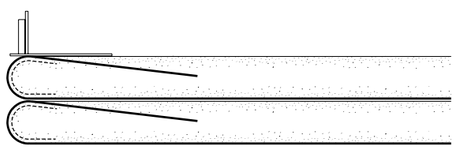
4. PLACE A WINDROW TO SLIGHTLY GREATER THAN FULL LIFT HEIGHT AGAINST THE FORM.



5. PLACE THE GEOSYNTHETIC "TAIL" OVER THE WINDROW AND LOCK INTO PLACE WITH BACKFILL.



6. COMPLETE BACKFILLING UNTIL THE COMPACTED BACKFILL LAYER THICKNESS IS EQUAL TO THE REQUIRED VERTICAL GEOSYNTHETIC LAYER SPACING.



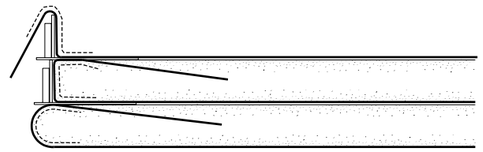
7. THE FORM MAY BE LEFT IN PLACE WHILE CONSTRUCTING THE NEXT LAYER (SEE NOTE 2), OTHERWISE, RESET THE FORM AND REPEAT THE SEQUENCE.

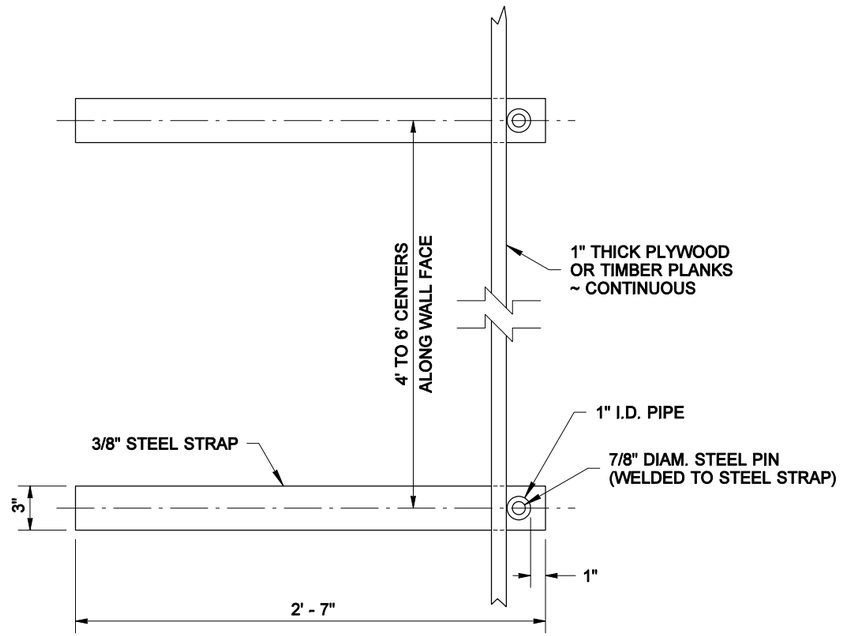
GEOSYNTHETIC WALL CONSTRUCTION SEQUENCE

(SECTION VIEW)

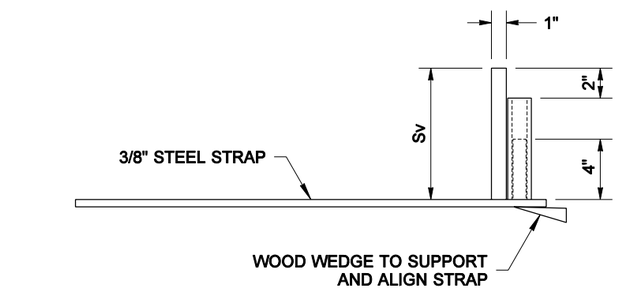
NOTES

1. USE OF THE TEMPORARY FORM SYSTEM, AS DETAILED IN THIS PLAN, IS OPTIONAL.
2. TO HELP MAINTAIN THE WALL FACE BATTER, LEAVE THE FORM SYSTEM FOR THE PRECEDING LAYER IN PLACE WHILE CONSTRUCTING THE NEXT LAYER. WHEN THE UPPER LAYER IS COMPLETE, REMOVE THE FORM SYSTEM FROM THE LOWER LAYER AND RESET IT FOR THE NEXT LAYER. SEE BELOW.





PLAN



ELEVATION

TEMPORARY FORM SYSTEM DETAIL

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PERMANENT GEOSYNTHETIC WALL TYPES 1 ~ 6 STANDARD PLAN D-3

SHEET 3 OF 3 SHEETS

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